

Claims

1. Apparatus including

a first device having a plurality of network input interfaces and a plurality of network output interfaces, said first device including a packet information extractor coupled to at least one said network input interface;

a second device coupled to said packet information extractor, said second device capable of generating packet forwarding information and output port information responsive to an output of said packet information extractor; and

an information link, coupled to said first device and said second device.

2. Apparatus as in claim 1, wherein

said first device includes a packet rewriter coupled to at least one said network output interface; and

said second device includes a packet rewrite generator coupled to said first device, said packet rewrite generator disposed for generating said packet forwarding information and output port information;

wherein said packet rewrite element is responsive to said packet rewrite generator.

3. Apparatus as in claim 1, including a packet buffer memory coupled

to said first device.

1 4. Apparatus as in claim 1, wherein said first device consists of a circuit
2 integrated into a single monolithic semiconductor circuit.

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4 5. Apparatus as in claim 1, wherein said second device consists of a
5 circuit integrated into a single monolithic semiconductor circuit.

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7 6. Apparatus as in claim 1, wherein
8 said first device consists of a circuit integrated into a single monolithic
9 semiconductor circuit; and

10 said second device consists of a circuit integrated into a single monolithic
11 semiconductor circuit.

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13 7. Apparatus as in claim 1, including a rewrite table including said re-
14 write information.

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16 8. Apparatus as in claim 7, wherein said first device includes said re-
17 write table.

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19 9. Apparatus as in claim 7, wherein said second device includes an ad-
20 dress pointing into said rewrite table, wherein said address can be forwarded to said first
21 device.

1 10. Apparatus including

2 a first device having at least one input interface and at least one output in-
3 terface, said first device including an information extractor having an input coupled to a
4 packet received from said input interface and having an output coupled to a first memory;
5 and

6 a second device including a decision generator having an input coupled to
7 said first device, and having an output coupled to said first device;

8 wherein said first device is responsive to a forwarding treatment from said
9 second device to determine a set of said output interfaces on which to couple said packet.

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11 11. Apparatus as in claim 10, wherein

12 said forwarding treatment includes packet rewrite information; and

13 said first device is responsive to said packet rewrite information to rewrite
14 said packet before coupling said packet to said set of output interfaces.

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16 12. Apparatus as in claim 10, wherein said forwarding treatment in-
17 cludes at least one action relating to accounting.

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19 13. Apparatus as in claim 10, wherein said forwarding treatment is re-
20 sponsive to information regarding access control.

1 14. Apparatus as in claim 10, wherein said forwarding treatment is re-
2 sponive to information regarding class of service or quality of service.

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4 15. Apparatus as in claim 10, wherein said forwarding treatment is re-
5 sponive to information regarding parsing, extracting and encoding the packet informa-
6 tion passed from said first device to said second device so as to minimize the amount of
7 said information forwarded between said first device and said second device.

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9 16. Apparatus as in claim 10, wherein said forwarding treatment is re-
10 sponive to said packet information memory.

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12 17. Apparatus as in claim 10, wherein said first device consists of a cir-
13 cuit integrated into a single monolithic semiconductor circuit.

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15 18. Apparatus as in claim 10, wherein said second device consists of a
16 circuit integrated into a single monolithic semiconductor circuit.

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18 19. A device integrated into a single monolithic semiconductor circuit,
19 said device including

20 at least one input interface and at least one output interface;

21 an information extractor having an input coupled to a packet received from
22 said input interface, and having an output coupled to a packet information memory;

1 an input coupled to a forwarding treatment memory;
2 said device being responsive to said forwarding treatment memory to de-
3 termine a set of said output interfaces on which to couple said packet.

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5 20. Apparatus as in claim 19, including
6 a second device coupled to said packet information memory;
7 a decision generator in said second device having an input coupled to said
8 packet information memory, and having an output coupled to a forwarding treatment
9 memory;

10 said first device being responsive to said forwarding treatment memory to
11 determine a set of said output interfaces on which to couple said packet.

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13 21. A device integrated into a single monolithic semiconductor circuit,
14 said device including
15 an input coupled to a packet information memory;
16 an output coupled to a forwarding treatment memory; and
17 a decision generator coupled to said packet information memory and to said
18 forwarding treatment memory.

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20 22. Apparatus as in claim 21, including
21 a packet data device having at least one input interface and at least one out-
22 put interface, said packet data device including an information extractor having an input

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